

ABSTRACT OF THE DISCLOSURE

A memory management unit (MMU) is disclosed for managing a memory storing data arranged within a plurality of memory pages. The MMU includes a security check unit (SCU) receiving a linear generated during execution of a current instruction. The linear address has a corresponding physical address residing within a selected memory page. The SCU uses the linear address to access one or more security attribute data structures located in the memory to obtain a security attribute of the selected memory page. The SCU compares a numerical value conveyed by a security attribute of the current instruction to a numerical value conveyed by the security attribute of the selected memory page, and produces an output signal dependent upon a result of the comparison. The MMU accesses the selected memory page dependent upon the output signal. The security attribute of the selected memory page may include a security context identification (SCID) value indicating a security context level of the selected memory page. The security attribute of the current instruction may include an SCID value indicating a security context level of a memory page containing the current instruction. A central processing unit (CPU) is described including an execution unit and the MMU. A computer system is described including the memory, the CPU, and the MMU. A method is described for providing access security for a memory used to store data arranged within a plurality of memory pages. The method may be embodied within the MMU.

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